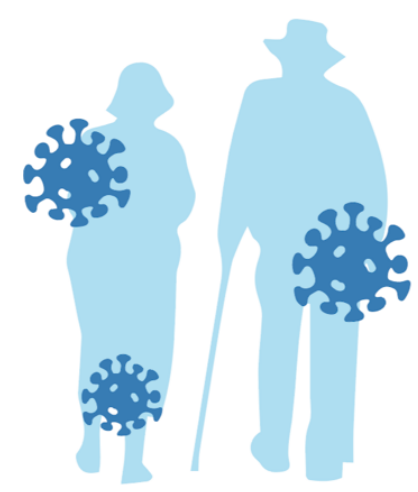


The Impact of Nursing Home Infection Preventionists' Education and Training on Resident COVID 19 Deaths

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BACKGROUND



Nursing Home (NH) residents have been disproportionately suffering from the impact of the COVID-19 pandemic

- ✓ About 90% of NH residents are 65 years of age or older and over 50% residents are long-term making NH residents vulnerable to infectious disease.
- ✓ As of February 5, 2022, 1 in 10 NH residents died of COVID-19, representing about *one third* of all COVID-19 deaths.

Therefore, the role of infection preventionists (IPs) have been emphasized by multiple organizations and states.

However, current evidence still lacks how IP education and training are related to COVID-19 burden in NHs.

OBJECTIVE

To determine whether NH IPs education and training are associated with resident COVID-19 deaths.

METHODS

Retrospective study with multivariable regression models

Data sources

- **CDC’s Long-Term Care Facility COVID-19 Module** (May, 2020 to Feb, 2021): weekly resident COVID-19 deaths per 1,000 residents
- **USA Facts**: county-level weekly COVID-19 deaths per 10,000 population
- **A national survey of NHs in 2018** (SIMP-EL R01NR013687: PI Stone): NH IP education and training in infection control
- **Provider of Service and Minimum Data Set**: resident and facility-level characteristics

A total of 857 NHs located in 489 counties were identified and included in this analysis.

RESULTS

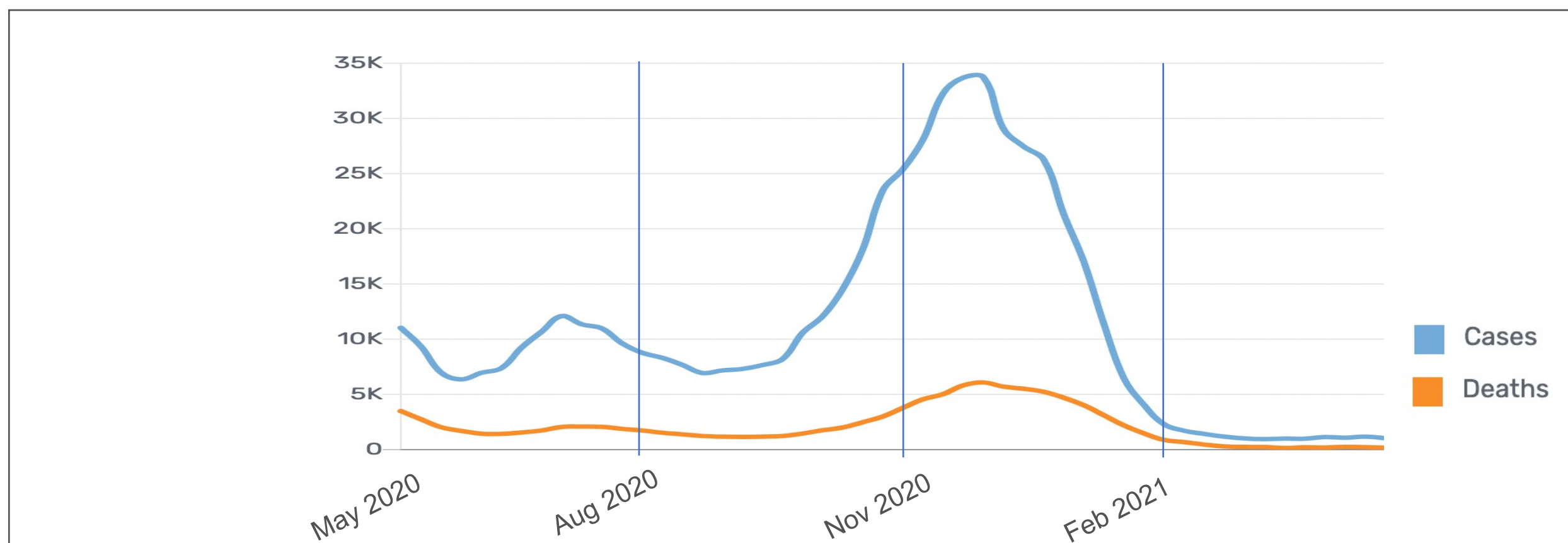
Table 1. Nursing home infection preventionist (IP) training and education

Variables	n (%)
IP training in infection control	
Yes*	479 (55.89)
No	378 (44.11)
IP education†	
LPN	137 (15.99)
RN or advanced clinician	719 (83.9)

*IP training [Yes]: certified in infection control; having state or local training course offered by a professional society; or other

†IP education: registered nurse [RN] or advanced clinician [e.g., nurse practitioner] vs. licensed practical nurse [LPN]

Figure 1. Nursing home weekly COVID-19 cases and deaths by 13-week period and multivariable regression results



Variables†	Coeff. (SE)				
	Week 1	Week 2-14	Week 15-27	Week 28-40	All Weeks
Training in infection control Yes	-0.27 (0.77)	-0.77 (0.56)	0.34 (0.30)	-0.69* (0.31)	-0.67*** (0.18)
IP education RN or advanced clinician	0.68 (1.52)	-0.16 (0.68)	-2.16*** (0.38)	0.59 (0.45)	-0.54* (0.25)

* $p < .05$; *** $p < .001$; IP = Infection Preventionist

† Coefficient estimates of weekly COVID-19 deaths per 1,000 NH residents for IP training interacted with COVID-19 county-level intensity (weekly COVID-19 deaths per 10,000 population) – adjusting for facility-level characteristics (bed size, ownership, chain status, urban/rural), facility-level residents’ characteristics (sex as a biological variable, age, race), and COVID-19 county-level intensity

RESULTS – CONTINUED

Over the entire pandemic period, we found when the NH IP had received **training in infection control** and were a **RN or advanced clinician**, the NH had lower rates of COVID-19 deaths compared to those did not receive any training and were LPN ($\beta = -0.67$, $SE = 0.18$, $p < 0.001$; $\beta = -0.54$, $SE = 0.25$, $p < 0.05$, respectively).

When NHs had the most severe stage of the outbreak (around December 2020 peak), NHs with infection control trained IPs had the lowest COVID-19 death rates ($\beta = -0.69$, $SE = 0.31$, $p < 0.05$).

CONCLUSION

The use of RN or advanced clinicians in the IP role with infection control training reduced NH resident deaths from COVID-19.

LIMITATIONS

- The lack of identifiable results for the accumulated data through 05/24/2020
- The pre-COVID policies may have been modified through the pandemic periods
- Other state, county-level COVID mitigation policies were not controlled



IMPLICATION FOR POLICY AND PRACTICE

- ✓ This study provides evidence-based policy recommendations to clinicians and policymakers to prevent future infectious disease crises in NHs.
- ✓ Supports the CDC and NASEM recommendations on employing one or more full-time IP with training in infection control in NHs.